CLAIMS

WHAT IS CLAIMED IS:

1. A method for managing bandwidth in a data network, the method comprising:

allocating capacity on a communication channel for a terminal to transmit data over the
communication channel; and

in anticipation of the terminal having to transmit additional data, further allocating
additional capacity on the communication channel for the terminal,

wherein the anticipatory allocation is determined according to loading of the data
network.

2. A method according to claim 1, wherein the communication channel in the allocating step is established by a transmission frame, the method further comprising:

selectively adjusting, based on the loading, burst size per frame corresponding to the
anticipatory allocation.

3. A method according to claim 1, wherein the step of further allocating is performed for a predetermined period after the initial allocation, the method further comprising:

selectively adjusting the predetermined period based on the loading.

4. A method according to claim 1, wherein the terminal is one of a plurality of terminals in the data network, and the allocation of capacity including the additional capacity of the communication channel is provided to the plurality of terminals, the method further comprising:

determining available capacity of the communication channel for the anticipatory
allocations; and

limiting the anticipatory allocations to a predetermined level based on the available
capacity of the communication channel.

5. A method according to claim 1, wherein the terminal is one of a plurality of terminals in the data network and the data network supports a plurality of communication channels, the method further comprising:

determining available capacity across a group of the plurality of communication channels for the anticipatory allocations; and

limiting the anticipatory allocations to a predetermined level based on the available capacity across the group of communication channels.

6. A method according to claim 1, wherein the data network includes a satellite for supporting two-way communication between the terminal and a hub, and the terminal is a Very Small Aperture Terminal (VSAT), the communication channel being based on Time Division Multiple Access (TDMA).

7. A computer-readable medium bearing instructions for managing bandwidth in a data network, the instructions being arranged, upon execution, to cause one or more processors to perform the step of a method according to claim 1.

8. A system for managing bandwidth in a data network, the system comprising:

a relay station configured to support transmission of data over a communication channel; and

a hub configured to allocate capacity on the communication channel for a terminal to transmit the data over the communication channel,

wherein, in anticipation of the terminal having to transmit additional data, the hub further allocates additional capacity on the communication channel for the terminal, the anticipatory allocation being determined according to loading of the data network.

9. A system according to claim 8, wherein the communication channel is established by a transmission frame, the hub being further configured to selectively adjust, based on the loading, burst size per frame corresponding to the anticipatory allocation.

10. A system according to claim 8, wherein the anticipatory allocation is performed for a predetermined period after the initial allocation, the hub being further configured to selectively adjust the predetermined period based on the loading.

11. A system according to claim 8, wherein the terminal is one of a plurality of terminals in the data network, and the allocation of capacity including the additional capacity of the communication channel is provided to the plurality of terminals, the hub being further configured to determine available capacity of the communication channel for the anticipatory allocations, and to limit the anticipatory allocations to a predetermined level based on the available capacity of the communication channel.

12. A system according to claim 8, wherein the terminal is one of a plurality of terminals in the data network, and the relay station supports a plurality of communication channels, the hub being further configured to determine available capacity across a group of the plurality of communication channels for the anticipatory allocations, and to limit the anticipatory allocations to a predetermined level based on the available capacity across the group of communication channels.

13. A system according to claim 8, wherein the relay station is a satellite for supporting two-way communication between the terminal and the hub, and the terminal is a Very Small Aperture Terminal (VSAT), the communication channel being based on Time Division Multiple Access (TDMA).

14. An apparatus for managing bandwidth in a data network, the apparatus comprising:
 means for allocating capacity on a communication channel for a terminal to transmit data over the communication channel; and
in anticipation of the terminal having to transmit additional data, means for further allocating additional capacity on the communication channel for the terminal,
wherein the anticipatory allocation is determined according to loading of the data network.

15. An apparatus according to claim 14, wherein the communication channel is established by a transmission frame, the apparatus further comprising:

means for selectively adjusting, based on the loading, burst size per frame corresponding to the anticipatory allocation.

16. An apparatus according to claim 14, wherein the anticipatory allocation is performed for a predetermined period after the initial allocation, the apparatus further comprising:

means for selectively adjusting the predetermined period based on the loading.

17. An apparatus according to claim 14, wherein the terminal is one of a plurality of terminals in the data network, and the allocation of capacity including the additional capacity of the communication channel is provided to the plurality of terminals, the apparatus further comprising:

means for determining available capacity of the communication channel for the anticipatory allocations; and

means for limiting the anticipatory allocations to a predetermined level based on the available capacity of the communication channel.

18. An apparatus according to claim 14, wherein the terminal is one of a plurality of terminals in the data network and the data network supports a plurality of communication channels, the apparatus further comprising:

means for determining available capacity across a group of the plurality of communication channels for the anticipatory allocations; and

means for limiting the anticipatory allocations to a predetermined level based on the available capacity across the group of communication channels.

19. An apparatus according to claim 14, wherein the data network includes a satellite for supporting two-way communication between the terminal and a hub, and the terminal is a Very Small Aperture Terminal (VSAT), the communication channel being based on Time Division Multiple Access (TDMA).

20. A method for managing bandwidth in a bandwidth constrained two-way radio communication system, the method comprising:

detecting an active terminal in the communication system;

allocating bandwidth on a return channel to receive data from the active terminal in response to the detected active terminal; and

providing subsequent bandwidth allocations on the return channel for anticipated traffic from the terminal based on the loading of the communication system, wherein the bandwidth allocations are adjusted according to one of duration of the subsequent bandwidth allocations and size of the bandwidth allocations.

21. A computer-readable medium bearing instructions for managing bandwidth in a bandwidth constrained two-way radio communication system, the instructions being arranged, upon execution, to cause one or more processors to perform the step of a method according to claim 20.

22. A method for ranging in a two-way radio communication system including a plurality of terminals, the method comprising:

transmitting a command to each of the terminals concurrently to enter into a ranging mode for adjusting at least one of power and timing of the terminals;

allocating capacity on a contention channel for transporting signals from the terminals in support of ranging;

monitoring the allocation of the capacity on the contention channel; and

selectively adjusting the capacity based upon the allocation of the capacity and loading of the system.

23. A computer-readable medium bearing instructions for ranging in a two-way radio communication system including a plurality of terminals, the instructions being arranged, upon execution, to cause one or more processors to perform the step of a method according to claim 22.

24. A method for managing bandwidth in a two-way radio communication system including a plurality of terminals, the method comprising:

allocating a number of slots on a contention channel to one of the terminals for transmission of traffic from the one terminal;

determining loading of the radio communication system; and

adjusting the number of slots on the contention channel for the one terminal according to the determined loading of the radio communication system.

25. A computer-readable medium bearing instructions for managing bandwidth in a two-way radio communication system including a plurality of terminals, the instructions being arranged, upon execution, to cause one or more processors to perform the step of a method according to claim 24.